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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DICKEY, THOMAS L	
ART UNIT	**PAPER NUMBER**
2826	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	09/804,654	ZHANG, HONGYONG
	Examiner	Art Unit
	Thomas L. Dickey	2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/763,225.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/12/01; 04/16/01*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. The preliminary amendment filed 04/16/2001 has been entered.

2. The non-final Office action mailed on 09/01/2006 was improper in that it failed to address all pending claims. This Action is non-final. Applicant's time to respond resets on the mailing of this Action. For purposes of Appeal, Applicant has the right to consider all claims "twice rejected" upon receipt of this Action.

3. It should be noted that the method of Makita et al. (JP-07297125-A, published in English as Makita et-Al. 5,696,003) achieves one-dimensional lateral crystal growth. Once this is accomplished, variations in the lateral crystal growth range due to variations in the shape and size of the catalyst element introduction region are eliminated. Note column 17 lines 8-16 of Makita et-Al. 5,696,003. This fact, it seems to the Examiner, is relevant to questions of the obviousness of to the claiming of various otherwise novel arrangements of shapes or sizes of catalyst element introduction regions. As none of Applicant's claims, in their present state, are novel, Makita et al.'s disclosure is not immediately relevant to the claims.

Election/Restriction

4. Applicant's election without traverse of the Group II invention (claims 2-17) in the reply filed on 10/10/2001 is acknowledged.

The requirement, having met no traverse, is therefore made FINAL.

Oath/Declaration

5. The oath/declaration filed on 03/12/2001 is acceptable.

Drawings

6. The formal drawings filed on 03/12/2001 are acceptable.

Priority

7. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/763225, filed on December 10, 1996.

Information Disclosure Statement

8. The Information Disclosure Statements filed on 03/12/2001 and 04/16/2001 have been considered.

Claim Objections

9. Claim 9 is a word-for-word duplicate of claim 7. This is assumed to be a typo. Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 2,4,6,8,10,12,14,and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al. (5,488,000).

With regard to claims 2 and 4, Zhang et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an active-matrix liquid-crystal display (electroluminescent) device, comprising the steps of forming a semiconductor film 13 comprising amorphous silicon on an insulating surface 12, said semiconductor film 13 having a first region 17 and a

second region 10; providing said first 17 and second 10 regions with a crystallization promoting material comprising a metal for promoting (note column 7 lines 56-57. Note that the steps of providing need not be performed simultaneously) crystallization of said semiconductor film 13; and heating said semiconductor film 13 with said crystallization promoting material to crystallize said semiconductor film 13; wherein crystals grow from first region 17 to second region 10 and the growth of the crystals terminates at second region 10. Note figures 1A-B and column 7 lines 39-48 and 56-57 of Zhang et al.

With regard to claims 6 and 8, Zhang et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 13 comprising amorphous silicon on an insulating surface 12, said semiconductor film 13 having a first region 17 and a second region 10; providing said first 17 and second 10 regions with a crystallization promoting material comprising a metal for promoting (note column 7 lines 56-57. Note that the steps of providing need not be performed simultaneously) crystallization of said semiconductor film 13; and heating said semiconductor film 13 with said crystallization promoting material to crystallize said semiconductor film 13; wherein said crystal growth is substantially in parallel to said insulating surface 12, and wherein second region

10 functions as a stopper for terminating the crystallization from first region 17. Note figures 1A-B and column 7 lines 39-48 and 56-57 of Zhang et al.

With regard to claims 10 and 12, Zhang et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 13 comprising amorphous silicon on an insulating surface 12, said semiconductor film 13 having a first region 17 and a second region 10; providing said first 17 and second 10 regions with a crystallization promoting material comprising a metal for promoting (note column 7 lines 56-57. Note that the steps of providing need not be performed simultaneously) crystallization of said semiconductor film 13; and heating said semiconductor film 13 with said crystallization promoting material to crystallize said semiconductor film 13; wherein the second region 10 and the first region 17 are stripe-shaped and arranged in parallel with each other; and wherein widths of said first 17 and second 10 stripe-shaped regions are different from each other. Note figures 1A-B and column 7 lines 39-48 and 56-57 of Zhang et al.

With regard to claims 14 and 16, Zhang et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 13 comprising amorphous silicon on an insulating surface 12, said semiconductor

film 13 having first and third regions 17 and a second region 10; providing first and third regions 17 and second region 10 with a crystallization promoting material comprising a metal for promoting (note column 7 lines 56-57. Note that the steps of providing need not be performed simultaneously) crystallization of said semiconductor film 13; and heating said semiconductor film 13 with said crystallization promoting material to crystallize said semiconductor film 13, said first and third regions 17 and second region 10 being stripe-shaped regions arranged in parallel; wherein second stripe-shaped region 10 is located between first and third stripe-shaped regions 17; and wherein a width of second stripe-shaped region 10 is smaller than widths of first and third stripe-shaped regions 17. Note figures 1A-B and column 7 lines 39-48 and 56-57 of Zhang et al.

B. Claims 2-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et-al. (5,403,772).

With regard to claims 2-5, the first embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 1 comprising amorphous silicon on an insulating surface 1B, the semiconductor film 1 having a first region 3 and a second region 3A; providing the first region 3 and the second region 3A with a crystallization promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium,

osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 1; and heating the semiconductor film 1 with the crystallization promoting material to crystallize the semiconductor film 1; wherein crystals grow from the first region 3 to the second region 3A and the growth of the crystals terminates at the second region 3A. Note figures 2A-C, column 6 lines 1-5, and column 12 lines 45-58 of Zhang et-al.

With regard to claims 6-9, the first embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 1 comprising amorphous silicon on an insulating surface 1B, the semiconductor film 1 having a first region 3 and a second region 3A; providing the first region 3 and the second region 3A with a crystallization promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 1; and heating the semiconductor film 1 with the crystallization promoting material to crystallize the semiconductor film 1; wherein the crystal growth is substantially in parallel to the insulating surface 1B, and wherein the second region 3A functions as a stopper for terminating the crystallization from the first region 3. Note figures 2A-C, column 6 lines 1-5, and column 12 lines 45-58 of Zhang et-al.

With regard to claims 10-13, the first embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 1 comprising amorphous silicon on an insulating surface 1B, the semiconductor film 1 having a first region 3 and a second region 3A; providing the first region 3 and the second region 3A with a crystallization promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 1; and heating the semiconductor film 1 with the crystallization promoting material to crystallize the semiconductor film 1; wherein the first region 3 and the second region 3A are stripe-shaped and arranged in parallel with each other; and wherein widths of the first and second stripe-shaped regions are different from each other. Note figures 2A-C, column 6 lines 1-5, and column 12 lines 45-58 of Zhang et-al.

With regard to claims 14-17, the first embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, the semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 1 comprising amorphous silicon on an insulating surface 1B, the semiconductor film 1 having first and third regions 3 and a second region 3A; providing the first and third regions 3 and the second region 3A a crystallization

promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 1; and heating the semiconductor film 1 with the crystallization promoting material to crystallize the semiconductor film 1; wherein the first and third regions 3 and the second region 3A are stripe-shaped and arranged in parallel with each other and the second region 3A is located between the first and third regions 3; and wherein a width of the second region 3A is smaller than widths of the first and third regions 3. Note figures 2A-C, column 6 lines 1-5, and column 12 lines 45-58 of Zhang et-al.

With regard to claims 2-5, the third embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 53 comprising amorphous silicon on an insulating surface 52, the semiconductor film 53 having a first region 55 and a second region 59A or 59B; providing the first region 55 and the second region 59A or 59B with a crystallization promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 53; and heating the semiconductor film 53 with the crystallization promoting material to crystallize the semiconductor film 53; wherein crystals grow from the first region 55 to the second region 59A or

59B and the growth of the crystals terminates at the second region 59A or 59B. Note figures 6A-B, column 6 lines 1-5, and column 15 lines 18-32 of Zhang et-al.

With regard to claims 6-9, the third embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 53 comprising amorphous silicon on an insulating surface 52, the semiconductor film 53 having a first region 55 and a second region 59A or 59B; providing the first region 55 and the second region 59A or 59B with a crystallization promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 53; and heating the semiconductor film 53 with the crystallization promoting material to crystallize the semiconductor film 53; wherein the crystal growth is substantially in parallel to the insulating surface 52, and wherein the second region 59A or 59B functions as a stopper for terminating the crystallization from the first region 55. Note figures 6A-B, column 6 lines 1-5, and column 15 lines 18-32 of Zhang et-al.

With regard to claims 10-13, the third embodiment of Zhang et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 53 comprising amorphous silicon on an insulating surface 52, the

semiconductor film 53 having a first region 55 and a second region 59A or 59B; providing the first region 55 and the second region 59A or 59B with a crystallization promoting material comprising iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, copper, or gold (a metal) for promoting crystallization of the semiconductor film 53; and heating the semiconductor film 53 with the crystallization promoting material to crystallize the semiconductor film 53; wherein the first region 55 and the second region 59A or 59B are stripe-shaped and arranged in parallel with each other; and wherein widths of the first and second stripe-shaped regions are different from each other. Note figures 6A-B, column 6 lines 1-5, and column 15 lines 18-32 of Zhang et-al.

C. Claims 2-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Chiyou et-al. (JP-07074366-A, published in English as Zhang et-Al. 5,481,121).

With regard to claims 2-5, Chiyou et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 503 comprising amorphous silicon on an insulating surface 502, the semiconductor film 503 having a first region 507 and a second region 510; providing the first region 507 and the second region 510 with a crystallization promoting material comprising iron, cobalt, nickel, or platinum (a metal) for promoting crystallization of the semiconductor film 503; and heating the semiconductor film 503 with the

crystallization promoting material to crystallize the semiconductor film 503; wherein crystals grow from the first region 507 to the second region 510 and the growth of the crystals terminates at the second region 510. Note figure 5C of Chiyou et-al. and column 6 lines 53-56 and column 11 lines 27-68 of Zhang et-al. 5,481,121.

With regard to claims 6-9, Chiyou et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 503 comprising amorphous silicon on an insulating surface 502, the semiconductor film 503 having a first region 507 and a second region 510; providing the first region 507 and the second region 510 with a crystallization promoting material comprising iron, cobalt, nickel, or platinum (a metal) for promoting crystallization of the semiconductor film 503; and heating the semiconductor film 503 with the crystallization promoting material to crystallize the semiconductor film 503; wherein the crystal growth is substantially in parallel to the insulating surface 502, and wherein the second region 510 functions as a stopper for terminating the crystallization from the first region 507. Note figure 5C of Chiyou et-al. and column 6 lines 53-56 and column 11 lines 27-68 of Zhang et-al. 5,481,121.

With regard to claims 10-13, Chiyou et-al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an

electroluminescent device, comprising the steps of forming a semiconductor film 503 comprising amorphous silicon on an insulating surface 502, the semiconductor film 503 having a first region 507 and a second region 510; providing the first region 507 and the second region 510 with a crystallization promoting material comprising iron, cobalt, nickel, or platinum (a metal) for promoting crystallization of the semiconductor film 503; and heating the semiconductor film 503 with the crystallization promoting material to crystallize the semiconductor film 503; wherein the first region 507 and the second region 510 are stripe-shaped and arranged in parallel with each other; and wherein widths of the first and second stripe-shaped regions are different from each other. Note figure 5C of Chiyou et-al. and column 6 lines 53-56 and column 11 lines 27-68 of Zhang et-al. 5,481,121.

D. Claims 2-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Makita et al. (JP-07297125-A, published in English as Makita et-al. 5,696,003).

With regard to claims 2-5, Makita et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 303 comprising amorphous silicon on an insulating surface 302, the semiconductor film 303 having a first region 305 and a second region 307; providing the first region 305 and the second region 307 with a crystallization promoting material comprising

cobalt, nickel, palladium, platinum, copper, or gold (a metal) for promoting crystallization of the semiconductor film 303; and heating the semiconductor film 303 with the crystallization promoting material to crystallize the semiconductor film 303; wherein crystals grow from the first region 305 to the second region 307 and the growth of the crystals terminates at the second region 307. Note figure 8C of Makita et al., and columns 18 lines 60-64, 19 lines 1-24, 21 lines 16-21 of Makita et-al. 5,696,003.

With regard to claims 6-9, Makita et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 303 comprising amorphous silicon on an insulating surface 302, the semiconductor film 303 having a first region 305 and a second region 307; providing the first region 305 and the second region 307 with a crystallization promoting material comprising iron, cobalt, nickel, or platinum (a metal) for promoting crystallization of the semiconductor film 303; and heating the semiconductor film 303 with the crystallization promoting material to crystallize the semiconductor film 303; wherein the crystal growth is substantially in parallel to the insulating surface 302, and wherein the second region 307 functions as a stopper for terminating the crystallization from the first region 305. Note figure 8C of Makita et al. and columns 18 lines 60-64, 19 lines 1-24, 21 lines 16-21 of Makita et-al. 5,696,003.

With regard to claims 10-13, Makita et al. discloses a method of manufacturing a semiconductor device, said semiconductor device being an electroluminescent device, comprising the steps of forming a semiconductor film 303 comprising amorphous silicon on an insulating surface 302, the semiconductor film 303 having a first region 305 and a second region 307; providing the first region 305 and the second region 307 with a crystallization promoting material comprising iron, cobalt, nickel, or platinum (a metal) for promoting crystallization of the semiconductor film 303; and heating the semiconductor film 303 with the crystallization promoting material to crystallize the semiconductor film 303; wherein the first region 305 and the second region 307 are stripe-shaped and arranged in parallel with each other; and wherein widths of the first and second stripe-shaped regions are different from each other. Note figure 8C of Makita et al. and columns 18 lines 60-64, 19 lines 1-24, 21 lines 16-21 of Makita et-al. 5,696,003.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Sue A. Purvis, at 571-272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas L. Dickey
Primary Examiner
Art Unit 2826